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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/662,209	09/14/2000	Bruno Acklin	P00,1314	5877

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EXAMINER
HARMON, CECIL B

ART UNIT	PAPER NUMBER
2828	

DATE MAILED: 01/30/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/662,209	ACKLIN ET AL.	
	Examiner	Art Unit	
	Cecil B. Harmon	2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-22 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-22 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Paul Ip
Primary Examiner

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Acknowledge is made of Information Disclosure Statement and Priority Document submitted 3 January 2001 and 14 September 2001 respectively.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This claim is indefinite because of the use of the term "substantially" in the phrase "substantially circular cross section". Cancellation of said term will overcome the rejection.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims1-6, 8-12 and 15-22 to the extend understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Barnett et al. **[3703656].**

In regards to claim 1 Barnett et al. disclose an illumination unit **Fig. 10,** which comprises a monolithic semiconductor laser diode array **col. 1, lines 1-10**

containing a plurality of individually drivable laser diode, **col. 1, lines 11-40** each of which emits radiation **col. 4, lines 27-47**; and optical arrangement **col. 1, lines 13-20** for at least one of collimating and focusing **col. 4, lines 4- 10** the radiation for producing a radiation beam **col. 4, lines 27-47** having a **substantially** circular cross section **col. 6, lines 8-17**; a common carrier **40** on which the laser diode array **Fig. 10** and the optical arrangement **col. 1, lines 13-20** are mounted; a plurality of pin-like terminal elements **col. 1 lines 49-61** at the carrier **40** electrically connected to the laser diode array **Fig. 10** for transmitting drive signals to the laser diodes **Fig. 10**; a covering, transparent **col. 3, lines 54-67** to the radiation, encapsulates the carrier (substrate) **40**.

In regards to claim 2, Barnett et al. teach an illumination unit **Fig. 10,** such that the optical arrangement **col. 1, lines 13-20** includes at lease one deflection mirror **40** for deflecting radiation **col. Lines 27-47** form the laser diodes **col. 1, lines 11-40** through the cover.

In regards to claim 3, Barnett et al. teach an illumination unit **Fig. 10** where the optical radiation **col. Lines 27-47** is emitted from the laser diodes **col. 1, lines 11-40** in an emission direction and wherein the deflection mirror **40** deflects the radiation **col. Lines 27-47** by 90 degrees relative to the emission direction.

In regards to claim 4, Barnett et al. teach an illumination unit **Fig. 10** where the deflection mirror **40** comprises a ceramic component **40** having a vapor (pyrolytic) deposited **col. 2, lines 44-59** mirrored surface.

In regards to claim 5, Barnett et al. teach an illumination unit **Fig. 10** which comprises a plurality of bond wires **col. 2, lines 1-13** electrically connecting the laser diode array **Fig. 10** to said pin-like terminal elements (fling lead). **See col. 1 lines 11-40.**

In regards to claim 6, Barnett et al. teach an illumination unit **Fig. 10** where each of the laser diodes **Fig. 10** is directly connected to one pin-like elements **41** via a respective bond wire **col. 2, lines 1-13** for forming a p-contact, and wherein the carrier **40** as an electrically conductive layer **14** at a side of the carrier **40** at which the laser diode array **Fig. 10** is mounted, the electrically conductive layer **14** being connected to at least one of the pin-like terminal elements **col. 1 lines 11-40** via a bond wire **col.1, lines 11- 18** and forming an n-contact for said laser diode array **Fig. 10**.

In regards to claim 8, Barnett et al. teach an illumination unit **Fig. 10** wherein the optical arrangement **col. 1, lines 13-20** comprises pre-fabricated component.

In regards to claim 9 Barnett et al. teach an illumination unit **Fig. 10** where the radiation is emitted by the laser diodes **Fig. 10** in an emission direction and where the optical arrangement **col. 1, lines 13-20** collimates the radiation in two axes disposed perpendicularly to each other and disposed perpendicularly to the emission direction.

In regards to claim 10, Barnett et al. teach an illumination unit **Fig. 10** where the carrier **40** comprises a ceramic carrier **40** formed by multi-layer technology. **See Fig. 10**

In regards to claim 11, Barnett et al. teach an illumination unit **Fig. 10** where the laser diode array **Fig. 10** and the optical arrangement **col. 1, lines 13-20** are secure to the carrier **40** with a glued connection.

In regards to claim 12, Barnett et al. teach an illumination unit **Fig. 10** where the cover is also secured to the carrier **40** with a glued connection.

In regards to claim 15, Barnett et al. teach an illumination unit **Fig. 10** where the covering is comprised of glass. **See col. 3, Lines 54-66**

In regards to claim 16, Barnett et al. teach an illumination unit **Fig. 10** where the covering is comprised of anti-reflection coated glass. **See col. 4, lines 1-10.**

In regards to claim 17, Barnett et al. teach an illumination unit **Fig. 10** which further comprises a cooling element **51** in thermal communication with the carrier **40**.

In regards to claim 18, Barnett et al. teach an illumination unit **Fig. 10** where the cooling element **51** is disposed at the carrier **40** at a region of the laser diode array **Fig. 10**.

In regards to claim 19, Barnett et al. teach an illumination unit **Fig. 10** where the cooling element **51** comprises a peltier element.

In regards to claim 20, an illumination unit **Fig. 10** where the carrier **40** comprises a surface mount device **23** and a carrier plate **40** securable to the carrier **40** by soldering.

In regards to claim 21, Barnett et al. teach an illumination unit **Fig. 10** where the carrier 40 is securable to the carrier plate **40** with a re-flow process.

In regards to claim 22, Barnett et al. teach an illumination unit **Fig. 10** further comprises the chip housing containing the carrier **40** where the housing is secured to the carrier plate *40.*

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 7, 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barnett et al. **[3703656].**

In regards to claim 7, Barnett et al. teach an illumination unit **Fig. 10** where the carrier **40** has a laterally **closed recess** in which the laser diode array **Fig. 10** and the optical arrangement **col. 1, lines 13-20** are disposed, and wherein the covering comprises a flat element closing the recess.

It is well known in the art to provide a flat elemental covering to close the recess to secure the component on the carrier and provide enhanced reliability to the unit.

In regards to claim 13, Barnett et al. teach an illumination unit **Fig. 10** where the glue connection is comprised of a temperature–resistant adhesive.

Glue bonding with temperature resistant adhesive in the manufacturing of semiconductors is well known in the art to provide high reliability devices even under extremely high temperature conditions.

In regards to claim 14, Barnett et al. teach an illumination unit **Fig. 10** where the optical arrangement **col. 1 lines 13-20** is secured to the carrier **40** with a glue connection and where the laser diode array **Fig. 10** is secured to the carrier **40** with a soldered connection.

It is well known in the art to apply soldered bonding connection in the process of semiconductor fabrication, for example, through hole soldering, to provide high quality bonding and mechanical strength to yield high conductivity.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cecil B. Harmon whose telephone number is 703-306-0247. The examiner can normally be reached on 8am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on 703-308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-0956 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Paul Ip

Paul Ip
Primary Examiner

CBH
January 25, 2002